

**BY ORDER OF THE CHIEF,  
NATIONAL GUARD BUREAU**



**MANPOWER STANDARD 21A1AR**

**28 AUGUST 2003**

***Manpower Standard***

***QUALITY ASSURANCE***

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This Air National Guard Manpower Standard (ANGMS) quantifies the manpower required to accomplish the tasks described in the process oriented description (POD) for varying levels of workload in the 189th Airlift Wing whose mission it is to provide aircrew training for students from each branch of the military that flies the C-130 aircraft and from 27 foreign countries. This standard applies to the 189th Airlift Wing, Little Rock Air Force Base, Arkansas, and encompasses all major processes performed within the Quality Assurance function. It does not apply to any other units. This standard is applicable to peacetime operations only. The Air National Guard (ANG) is authority for the approval and publication of ANG Manpower Standards. Air Force (AF) and ANG directives contain policy and procedural guidance for the operation of Quality Assurance. This standard was developed in accordance with AF Instruction (AFI) 38-201, *Determining Manpower Requirements*, and AF Manual (AFMAN) 38-208, Volume 1, *Air Force Management Engineering Program (MEP) Processes*, and AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP) - Quantification Tools*. Send comments and suggested improvements on AF IMT 847, *Recommendation for Change of Publication*, through channels, to ANG, Management Engineering Branch (ANG/XPME / Operating Location TN [OLTN]), 106 Briscoe Drive, McGhee Tyson Air National Guard Base, TN 37777-6283.

**1. STANDARD DATA.**

1.1. Approval Date: 28 August 2003.

1.2. Man-hour Data Sources: The Operational Audit (historical record and technical estimate) technique was used to collect/determine man-hour/manpower data.

1.3. Standard Manpower Equation:  $Y = 232.9 + 65.59X$ .

#### 1.4. Workload Factor.

1.4.1. Title. X= Primary Aircraft Inventory (PAI).

1.4.2. Definition. Number of PAI authorized to support the unit training mission.

1.4.3. Source. United States Air Force (USAF) Programming Document (PD), Volume 2, maintained by ANG, Financial Management (ANG/FM).

#### 1.5. Application Instructions.

1.5.1. Equation: Apply the equation in Paragraph 4.2., to determine the required man-hours.

1.5.2. Man-Hour Availability Factor (MAF): Divide the resulting man-hours by the appropriate MAF/overload factor. The answer, rounded up, will quantify the required manpower.

1.5.3. Upper and Lower Extrapolation Limits:

1.5.3.1.  $Y_U = 947.025$

1.5.3.2.  $Y_L = 568.215$

#### 1.6. Points of Contact.

1.6.1. Functional: Col John J Samuhel, 189 MX/CC

1.6.2. Manpower: George W. Tatum III, ANG/XPME/OLTN

**2. STATEMENT OF CONDITIONS.** The normal hours of operation for this function are 80 hours per two-week period. The alternate work schedule of eight nine hour days, and one eight hour day is the norm. No environmental, equipment, or facility conditions affect this Manpower Standard.

DANIEL JAMES III, Lieutenant General, USAF  
Director, Air National Guard

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION***References*

AFI 38-201 *Determining Manpower Requirements*

AFMAN 38-208, Volume 1, *Air Force Management Engineering Program (MEP)-Process*

AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP)-Quantification Tools*

ANGI 21-101, *Maintenance Management of Aircraft*

AFMS 00AA, *Standard Indirect Description*

*Abbreviations and Acronyms*

**AF** - Air Force

**AFMS** - Air Force Manpower Standard

**AFSC** - Air Force Specialty Code

**ANG** - Air National Guard

**ANGMS** - Air National Guard Manpower Standard

**ATOMS** - Automated Technical Order Maintenance System

**AUTODIN** - Automated Digital Network

**CTK** - Composite Tool Kit

**DMS** - Defense Messaging System

**DREAMS** - Deficiency Report Entry And Mail System

**FM** - Financial Manager

**FOD** - Foreign Object Damage

**GCCS** - Global Command And Control System

**IMT** - Information Management Tool

**JCALs** - Joint Computer-Aided Acquisition And Logistics Support System

**JEDMICS** - Joint Engineering Data Management Information And Control System

**MAF** - Man-Hour Availability Factor

**MEP** - Management Engineering Program

**MPE** - Management Process Evaluation

**MSI** - Manpower Standards Implementation

**OI** - Operating Instruction

**PAI** - Primary Aircraft Authorized

**PD** - Programming Document

**POD** - Process Oriented Description

**QAS** - Quality Assurance Summary

**SCR** - Special Certification Roster

**TO** - Technical Order

**TCTO** - Time Compliance Technical Order

**TDY** - Temporary Duty

**UMD** - Unit Manpower Document

**USAF** - United States Air Force

**UTA** - Unit Training Assembly

### *Terms*

**Air National Guard Manpower Standard (ANGMS).** A numbered, specialized publication that quantifies manpower requirements for a work center, it also includes approved variances. See AFI 38-201.

**Man-Hour.** A unit of measuring work. It is equivalent to one person working at a normal pace for 60 minutes, two people working at a normal pace for 30 minutes, or similar combination of people working at a normal pace for a period of time equal to 60 minutes.

**Manpower Standard.** The basic tool used to determine the minimum level of manpower required to support a function. It is a quantitative expression that represents a work center's man-hour requirements in response to varying levels of workload.

**Process Oriented Description.** A format that shows work center responsibilities structured for easy measurement of work categories, tasks and subtasks.

## Attachment 2

**PROCESS ORIENTED DESCRIPTION  
QUALITY ASSURANCE**

**Table A2.1. Listing of Functional Processes.**

1.	INSPECTION PROGRAM:
1.1.	PERFORMS QUALITY PROCESS EVALUATION. Ensures equipment and processes are adequately evaluated. Verifies equipment condition following maintenance during fix or inspection action. Assesses performance, qualification, and training level of maintenance personnel. Prepares/distributes inspection report.
1.1.1.	PERFORMS PRE-FLIGHT INSPECTION.
1.1.2.	PERFORMS POST-FLIGHT INSPECTION.
1.1.3.	PERFORMS THRU-FLIGHT INSPECTION.
1.1.4.	PERFORMS END-OF-RUNWAY PROCEDURES INSPECTION.
1.1.5.	PERFORMS AIRCRAFT LAUNCH/RECOVERY INSPECTION.
1.1.6.	PERFORMS AIRCRAFT PHASE/ISOCHRONAL INSPECTION.
1.1.7.	PERFORMS AIRCRAFT SERVICING INSPECTION.
1.1.8.	MANAGES QUALITY ASSESSMENT PROGRAM.
1.1.9.	PERFORMS ENGINE AND AIRCRAFT LUBE-WASH-PAINT-CORROSION CONTROL INSPECTION.
1.1.10.	PERFORMS AEROSPACE GROUND EQUIPMENT POWERED/NON-POWERED INSPECTION.
1.1.11.	PERFORMS HOUSE KEEPING INSPECTION. Performs periodic inspection for adequacy of housekeeping, identification of safety and fire hazard and identification of equipment and facility condition requiring maintenance and repair; inspects assigned flight line area, dock, or maintenance equipment. Prepares report and recommendation for corrective action.
1.1.12.	PERFORMS CRITICAL TASK ASSESSMENT OF ENGINE MAINTENANCE.
1.1.13.	PERFORMS ENGINE TEST CELL/HUSH HOUSE INSPECTION.
1.1.14.	PERFORMS INSPECTION RESULTING FROM AIRCRAFT STATUS REPORT.

1.1.15.	PERFORMS DOCUMENTATION INSPECTION. INCLUDES ACTIVE AIRCRAFT, AIRCRAFT HISTORICAL DOCUMENT FILE AND EQUIPMENT FORM.
1.1.16.	PERFORMS OBSERVATION/UNANNOUNCED INSPECTION.
1.1.17.	PERFORMS SPECIAL INSPECTION.
1.1.18.	PERFORMS ONE-TIME INSPECTION:
1.1.18.1.	PERFORMS ONE-TIME INSPECTION DIRECTED BY HIGHER HEADQUARTERS.
1.1.18.2.	PERFORMS ONE-TIME INSPECTION DIRECTED BY BASE-LEVEL AUTHORITY.
1.1.19.	PERFORMS AIRCRAFT WEAPONS SYSTEM MAINTENANCE INSPECTION:
1.1.19.1.	PERFORMS WEAPONS LOADING/DOWNLOADING INSPECTION.
1.1.19.2.	PERFORMS WEAPONS MAINTENANCE/MUNITIONS BUILDUP INSPECTION.
1.1.19.3.	PERFORMS WEAPONS CONTROL SYSTEM INSPECTION.
1.1.19.4.	PERFORMS GUN SYSTEM INSTALLATION/REMOVAL MAINTENANCE/AFTER 18 MONTHS INSPECTION.
1.1.19.5.	PERFORMS MUNITIONS, STORAGE, AND ACCOUNTABILITY INSPECTION.
1.1.19.6.	PERFORMS MUNITIONS TRAILER MAINTENANCE AND MUNITIONS MATERIAL HANDLING EQUIPMENT INSPECTION.
1.1.19.7.	PERFORMS MISSILE MAINTENANCE INSPECTION.
1.2.	PERFORMS COMPOSITE TOOL KIT (CTK) INSPECTION:
1.2.1.	INSPECTS CTK FOR COMPLIANCE WITH ANGI 21-101, <i>MAINTENANCE MANAGEMENT OF AIRCRAFT</i> , AND LOCAL OPERATING PROCEDURE.
1.2.2.	SERVES AS PRIMARY POINT OF CONTACT FOR LOST TOOL ACTION.
1.2.3.	PROCESSES LOCALLY MANUFACTURED TOOLS.
1.3.	PERFORMS AUTOMATED DATA COLLECTION DOCUMENTATION INSPECTION.
1.4.	PERFORMS MISCELLANEOUS INSPECTION. Performs routine post-maintenance assessment on aircraft systems. Includes Avionics inspection performed upon surveillance/monitoring.

2.	PROGRAM ADMINISTRATION/MANAGEMENT:
2.1.	PERFORMS INITIAL VERIFICATION. Performs initial verification of Time Compliance Technical Order (TCTO) accomplishment during first aircraft or equipment modification.
2.2.	REVIEWS/MONITORS TCTO PROGRAM COMPLIANCE:
2.2.1.	DETERMINES APPLICABILITY.
2.2.2.	DISTRIBUTES TCTO TO APPROPRIATE WORK CENTER AND BASE AGENCY.
2.2.3.	REVIEWS PROGRAM. EVALUATES TCTO AND REPORTS DEFICIENCY TO APPROPRIATE AGENCY.
3.	PERFORMS DEFICIENCY ANALYSIS. Monitors pilot-related discrepancy for trend and analysis.
4.	PERFORMS HOT PIT REFUELING TRAINING AND CERTIFICATION. Conducts training and certifies hands-on process. Coordinates hot pit site certification and risk assessment with higher headquarters.
5.	MANAGES PUBLICATION:
5.1.	MANAGES WORKCARD, CHECKLIST, CODE MANUAL AND/OR PUBLICATION. Develops, maintains, reviews, and inspects. Includes Technical Order (TO) review.
5.2.	MAINTAINS LOCALLY DEVELOPED CHECKLIST, CHECKSHEET AND/OR TO SUPPLEMENT.
5.3.	MANAGES OPERATING INSTRUCTION (OI). Reviews OI for administrative accuracy, technical content and necessity. Coordinates with affected activity.
6.	MANAGES FOREIGN OBJECT DAMAGE (FOD) PROGRAM:
6.1.	PERFORMS SCHEDULED/ORGANIZED FOD WALK.
6.2.	COORDINATES WITH CIVIL ENGINEERING.
6.3.	ATTENDS FOD MEETING, BOARD AND/OR COUNCIL.
7.	MANAGES JOINT ENGINEERING DATA MANAGEMENT INFORMATION AND CONTROL SYSTEM (JEDMICS) PROGRAM. Researches/downloads drawing/plan from centralized system. Evaluates drawing/plan and determines action required. Maintains, distributes and controls in accordance with security requirement.
8.	MONITORS MAINTENANCE TRAINING PROGRAM.
9.	MANAGES REPAIR ENHANCEMENT PROGRAM.

10.	MANAGES IN PROCESS INSPECTION PROGRAM. Creates, inspects and reviews.
11.	MANAGES SPECIAL CERTIFICATION ROSTER (SCR) PROGRAM. Maintains current SCR and reviews applicability; ensures listing of personnel authorized to clear Red X condition; and provides training for Red X certification.
12.	MANAGES ORGANIZATIONAL RISK MANAGEMENT PROGRAM.
13.	MONITORS SAFETY PROGRAM.
14.	RESPONDS TO EMERGENCY/SITUATION:
14.1.	RESPONDS TO FUEL SPILL.
14.2.	RESPONDS TO INFLIGHT EMERGENCY.
14.3.	RESPONDS TO AIRCRAFT MISHAP.
14.4.	RESPONDS TO BIRDSTRIKE.
14.5.	RESPONDS TO GROUND MISHAP.
14.6.	RESPONDS TO FOD INCIDENT.
15.	INVESTIGATES ABORT/INCIDENT. Investigates abort and recurring flight discrepancy/incident for possible trend and recommends corrective action.
16.	MONITORS USE AND CONDITION OF PERSONAL PROTECTIVE EQUIPMENT.
17.	MONITORS DROPPED/LOST OBJECT PROGRAM. Maintains tracking of dropped/lost object for trend analysis. Interfaces with Wing safety office on lost object, possible cause, and corrective action.
18.	MANAGES CROSS-FEED/CROSS TELL PROGRAM. Maintains master file, performs inspection to identify local problem, monitors corrective action and provides feedback.
19.	MANAGES/ADMINISTERS IMPOUNDMENT/RELEASE PROGRAM.
20.	INVESTIGATES REFERRAL FROM MAINTENANCE ANALYSIS. Investigates cause and reports finding.
21.	MANAGES WEIGHT AND BALANCE PROGRAM. Manages weighing procedure and flight clearance form for applicable flight configuration.
22.	MANAGES AIRCRAFT ACCEPTANCE PROGRAM.
22.1.	PREPARES AIRCRAFT FOR PDM.

22.2.	EVALUATE AND DETERMINE APPLICABILITY OF DATA FOR WORK TO BE PERFORMED AND PDM.
22.3.	ACCOMPLISHES AIRCRAFT INVENTORY PRIOR TO AIRCRAFT LEAVING HOME STATION.
22.4.	ACCOMPLISHES AIRCRAFT INVENTORY UPON AIRCRAFT RETURN TO HOME STATION.
23.	PERFORMS AS MODIFICATION PROGRAM FOCAL POINT.
24.	MANAGES INTERIM CONTRACTOR SUPPORT PROGRAM.
25.	ENSURES CONFIGURATION MANAGEMENT OF AIRCRAFT/EQUIPMENT IS MAINTAINED.
26.	MANAGES/COORDINATES/DISTRIBUTES ELECTRONIC MESSAGE. Includes Defense Messaging System (DMS), Global Command and Control System (GCCS), Automated Digital Network (AUTODIN), and/or Deficiency Report Entry and Mail System (DREAMS) messaging systems.
27.	MANAGES PRODUCT IMPROVEMENT PROGRAM. Includes Quality Deficiency, Software Deficiency, and/or Bad-Actor Deficiency program. Investigates deficiency; reviews, prepares and submits report. Inputs into data system. Performs follow up and tracking.
28.	ADMINISTERS SOURCE, MAINTENANCE, AND RECOVERABILITY CODE CHANGE REQUEST. Ensures information and justification is provided on AFTO Form 135, <i>Source, Maintenance and Recoverability Code Change Request</i> . Maintains control log.
29.	MANAGES AIR FORCE SUGGESTION PROGRAM AT BASE LEVEL. Performs assessment, monitors and tracks suggestion.
30.	PERFORMS MANAGEMENT PROCESS EVALUATION (MPE) INSPECTION/FOLLOW UP INSPECTION. Performs MPE to ensure compliance with published directive. Performs and coordinates self-inspection program. Conducts follow up. Maintains file.
31.	MANAGES FUNCTIONAL CHECK FLIGHT/OPERATIONAL CHECK FLIGHT/HIGH SPEED TAXI PROGRAM. Briefs pilot on required profile and debriefs upon return. Maintains pilot currency log and profile.
32.	PERFORMS EVALUATION DATABASE MAINTENANCE. Inputs evaluation data and performs backup.
33.	MANAGES DEPOT/CONTRACT FIELD TEAM PROGRAM. Requests depot assistance and ensures quality of maintenance.
34.	MANAGES QUALITY ASSURANCE SUMMARY (QAS) PROGRAM. Compiles and analyzes QAS data and performs trending analysis.

35.	MANAGES FIELD INFORMATION NETWORK PROGRAM.
36.	MONITORS PRODUCTION INSPECTION STAMP PROGRAM.
37.	ADMINISTERS MAINTENANCE DISASTER PREPAREDNESS PROGRAM.
38.	MONITORS MAINTENANCE ABILITY TO SURVIVE AND OPERATE PROGRAM.
39.	ADMINISTERS TECHNICAL ORDER SYSTEM. Includes Automated Technical Order Maintenance System (ATOMS) or Joint Computer-Aided Acquisition and Logistics Support System (JCALS). Manages and maintains system. Obtains and distributes publication.
39.1.	PREPARES/TRACKS AFTO FORM 22, <i>TECHNICAL ORDER IMPROVEMENT REPORT AND REPLY</i> . Performs critical review. Resubmits as necessary. Maintains control log.
39.1.1.	DISTRIBUTES INVENTORY LIST TO SUB ACCOUNTS.
39.1.2.	PERFORMS TECHNICAL ORDER SUBACCOUNT INSPECTION.
39.2.	PERFORMS CHECKS FOR UPDATES TO TECHNICAL ORDER MASTER FILE.
39.2.1.	PERFORMS TECHNICAL ORDER SUBACCOUNT INSPECTION.
39.2.2.	PERFORMS ANNUAL RECONCILIATION FOR TECHNICAL ORDER MASTER FILE.
39.2.3.	DISTRIBUTES LIST OF TOS ON ORDER FOR SUBACCOUNTS.
39.3.	DISTRIBUTES LIST OF TOS RECEIVED. Distributes list of TOs on order for sub-accounts.
39.4.	PERFORMS TECHNICAL DATA USAGE AND TECHNICAL ORDER MANAGEMENT INSPECTION.
39.5.	TECHNICAL GUIDANCE. Interprets technical data and provides guidance.
39.6.	UPDATES QUALITY ASSURANCE WEBB PAGE.
40.	PROGRAM PLANNING/SCHEDULING:
40.1.	PREPARES FOR UNIT TRAINING ASSEMBLY.
40.2.	PREPARES FOR ANNUAL TOUR.
40.3.	PREPARES FOR MOBILITY PARTICIPATION.
40.4.	CONTINGENCY/EXERCISE/INSPECTION. Prepares for and supports contingency/exercise/inspection.

41.	TEMPORARY DUTY (TDY). Performs TDY associated with mission, such as acceptance of aircraft from depot, modification site or contract field team.
42.	PRODUCES REPORT. Produces report associated with mission; distributes and maintains file.
43.	GOVERNMENT PURCHASES:
43.1.	PURCHASES ITEMS FOR ALL NON-FLY ACTIVITIES WITHIN LOGISTICS GROUP. Purchase items through computer, telephone, and picks-up.
43.2.	RECORDS PURCHASES AND RECONCILES STATEMENTS.
44.	MANAGEMENT:
44.1.	ADMINISTERS PERSONNEL:
44.1.1.	INDOCTRINATES PERSONNEL. Conducts initial interview, makes original job assignment, and acquaints newly assigned personnel with the work center.
44.1.2.	RATES PERFORMANCE:
44.1.2.1.	PREPARES PERFORMANCE REPORT. Develops performance report by researching, evaluating, drafting, proofreading typed copy, marking boxes, and signing completed report.
44.1.2.2.	INDORSES PERFORMANCE REPORT. Develops endorsement by researching, evaluating, drafting, proofreading typed copy, and signing completed report.
44.1.2.3.	NOMINATES PERSONNEL FOR AWARD. Develops recommendation by researching, evaluating, drafting, proofreading typed copy, and signing completed product.
44.1.2.4.	MONITORS MANAGEMENT IMPROVEMENT PROGRAM. Assists subordinate in developing improvement suggestion, and processes suggestion received for evaluation.
44.1.2.5.	MONITORS TRAINING. Reviews training record and monitors progress of subordinate.
44.2.	SUPERVISES PERSONNEL:
44.2.1.	SCHEDULES PERSONNEL. Schedules subordinate supervisor to provide adequate supervisory coverage in proportion to each shift's workload. Schedules leaves and passes.
44.2.2.	DEVELOPS DIRECTIVE. Develops policy, plan, procedure, operating instruction, checklist, and performance standard by researching, drafting, proofreading typed copies, and signs.
44.3.	DIRECTS AND CONTROLS SUBORDINATE WORK CENTER ACTIVITY:

44.3.1.	MONITORS WORK PRIORITY. Monitors scheduled and unscheduled work priority.
44.3.2.	PROVIDES GUIDANCE. Translates the broad management objectives of the unit commander into technical guidance and direction to subordinate supervisors for work force management.
44.4.	ASSISTS UNIT MOBILITY. Assists in the preparation of the unit mobility plan, identifies mobility resources, and evaluates the unit readiness capability.
44.5.	MONITORS SPECIAL AND RECURRING PROJECT OR PROGRAM.
44.6.	REVIEWS INCOMING AND OUTGOING COMMUNICATION. Reviews incoming distribution for information and necessary action. Reviews outgoing distribution for completeness, accuracy of content, and signs, when necessary.
44.7.	REVIEWS REPORT AND STATISTICAL DATA. Reviews report and statistical data for the purpose of evaluating each work center, and identifies exception or trend that requires management attention. Reviews quality control report, makes comment, and signs, when required.
44.8.	INSPECTS FACILITY. Performs periodic inspection of work center for adequate housekeeping and identifies hazard affecting safety, fire, or security. Identifies equipment and facility condition requiring maintenance or repair.
44.9.	INVESTIGATES ACCIDENT OR INCIDENT. Investigates ground or explosive incident and prepares required report.
45.	INDIRECT. Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of standard indirect work are: Administers Civilian, Officer, and Enlisted Personnel; Directs Work Center Activity; Provides Administrative Support; Prepares for and Conducts/Attends Meeting; Administers Training; Manages Supplies; Maintains Equipment; and Performs Cleanup.

**Attachment 3****MANPOWER TABLE****A3.1. Standard Manpower Table**

<b>Air Force Specialty Title</b>	<b>AFSC</b>	<b>Grade</b>	<b>Manpower Requirement</b>		
Supv Quality Assurance	2A3XX	Civ	1	1	1
Qual Assur Spec	2A3XX	Civ	2	2	4
Mgt Asst	3A0XX	Civ	1	1	1
Total			4	5	6

**NOTE.** AFSCs may be adjusted at the discretion of the Commander.